IN THE CLAIMS

Please amend the claims to read as indicated herein.

1. (previously presented) A method of determination of an optical property of an optical device under test comprising:

splitting an incoming light beam into a first initial light beam and a second initial light beam;

splitting said first initial light beam into a first light beam and a second light beam;

coupling the first light beam into the optical device under test;

letting the second light beam travel a different path from the first light beam;

superimposing the first and the second light beam to produce interference between the first light beam and the second light beam in a resulting first superimposed light beam;

detecting the power of the first superimposed light beam for deriving a first signal over time containing information about the optical property of the device under test when tuning a frequency of the incoming light beam over a given frequency range;

splitting the second initial light beam into a third light beam and a fourth light beam;

superimposing the third and the fourth light beam after the third and fourth light beams have traveled a different path, to produce interference between the third and the fourth light beam in a resulting second superimposed light beam;

detecting the power of the resulting second superimposed light beam for deriving a second signal over time containing information about a time dependence of a frequency when tuning a frequency of the incoming light over a given frequency range;

compensating a time-delay between the first and the second signal; and

deriving a frequency dependency of the first signal for deriving the optical property of the optical device under test.

2. (previously presented) The method of claim 1, further comprising:

deriving elements of a Jones matrix for the optical device under test from the compensated frequency dependence of the detected powers.

3. (previously presented) The method of claim 1, further comprising at least one of:

using a first light beam with defined polarization, detecting the power of the resulting first superimposed light beam as a function of frequency and polarization, and deriving a polarization mode dispersion of the device under test from the information obtained through the measurement, preferably represented as Jones matrix elements of the device under test;

deriving a chromatic dispersion of the device under test from the Jones matrix elements of the device under test;

using said first light beam with defined polarization, detecting the power of the resulting first superimposed light beam as a function of frequency and polarization, and deriving the principal states of polarization of the device under test from the Jones matrix elements of the device under test;

using said first light beam with defined polarization, detecting the power of the resulting first superimposed light beam as a function of frequency and polarization, and deriving the polarization dependent loss of the device under test from the Jones matrix elements of the device under test;

using said first light beam with defined polarization, detecting the power of the resulting first superimposed light beam as a function of frequency and polarization, and deriving the fast and slow group delays, associated with the fast and slow principal states of polarization of the device under test from the Jones matrix elements of the device under test;

deriving the insertion loss of the device under test from the Jones matrix elements of the device under test;

deriving a transmissivity of reflectivity of the device under test from the Jones matrix elements of the device under test; and

using a first light beam with defined polarization, detecting the power of the resulting first superimposed light beam as a function of optical frequency and polarization, and deriving higher-order polarization mode dispersion parameters from the Jones matrix elements of the device under test.

4. (previously presented) The method of claim 1, further comprising:

choosing the time-delay to be ½ $(\tau_2-\tau_1)+\tau_d$,

τ_2 being the delay of the fourth light beam relative to the third light beam, $\tau 1$ being the delay of the first light beam relative to the second light beam, $(\tau 2 - \tau 1)$ being an internal delay, and τd being an external delay.

5. (previously presented) A software program or product for executing a method when run on a data processing system, said method comprising:

splitting an incoming light beam into a first initial light beam and a second initial light beam;

splitting said first initial light beam into a first light beam and a second light beam;

coupling the first light beam into the optical device under test;

letting the second light beam travel a different path from the first light beam;

superimposing the first and the second light beam to produce interference between the first light beam and the second light beam in a resulting first superimposed light beam;

detecting the power of the first superimposed light beam for deriving a first signal over time containing information about the optical property of the device under test when tuning a frequency of the incoming light beam over a given frequency range;

splitting the second initial light beam into a third light beam and a fourth light beam;

superimposing the third and the fourth light beam after the third and fourth light beams have traveled a different path, to produce interference between the third and the fourth light beam in a resulting second superimposed light beam;

detecting the power of the resulting second superimposed light beam for deriving a second signal over time containing information about a time dependence of a frequency when tuning a frequency of the incoming light over a given frequency range;

compensating a time-delay between the first and the second signal; and

deriving a frequency dependency of the first signal for deriving the optical property of the optical device under test.

6. (currently amended) An apparatus for determination of a property of an optical device under test comprising:

a beam splitter in the path of the incoming light beam for splitting the incoming light beam into a first initial light beam traveling a first initial path and a second initial light beam traveling a second initial path;

a beam splitter in the path of the first initial light beam for splitting the first initial light beam into a first light beam traveling a first path and a second light beam traveling a second path, wherein the optical device under test can be coupled in said first path for coupling in the first light beam;

a recombiner in said first path and in said second path for superimposing the first and the second light beam after the second light beam has traveled a different path as the first light beam to produce interference between the first light beam and the second light beam in a resulting first superimposed light beam traveling a first resulting path;

a first power detector in said first resulting path for detecting, and providing a first signal representing, the power of the resulting first superimposed light beam traveling the first resulting path as a function of frequency when tuning the frequency of the incoming light beam over a given frequency range;

a beam splitter in said second initial path for splitting the second initial light beam in a third light beam traveling a third path and a fourth light beam traveling a fourth path;

a recombiner in said third and said fourth path for superimposing the third and the fourth light beam after said third and fourth light beam have traveled a different path, to produce interference between the third and the fourth light beam in a resulting second superimposed light beam traveling a second resulting path; ~~and~~

a second power detector in said second resulting path for detecting, and providing a second signal representing, the power of the resulting second superimposed light beam as a function of frequency when tuning the frequency of the incoming light beam over a given frequency range~~,~~; and

an evaluation unit that:

~~wherein said first and second power detectors have an output connected with an evaluation unit for:~~

~~detecting~~ detects a time dependence in a tuning gradient of the frequency when tuning the frequency of the incoming light beam over the given frequency range,

~~using~~ uses a time-delay for compensating an external and/or an internal time-delay between the first signal and the second signal,

derives a frequency dependency of the first signal, and

~~deriving~~ derives an optical property of the optical device under test from the ~~compensated optical frequency dependencies of the detected powers~~ frequency dependency of the first signal.

7. (previously presented) A method of determination of an optical property of an optical device under test comprising:

tuning an optical frequency λ of an optical beam;

deriving a dependency of the optical frequency λ of the optical beam over a first time period t;

deriving a dependency of the optical property of the device under test over a second time period t+Δt;

synchronizing the time dependency of the optical frequency λ of the optical beam with a time dependency of the optical property of the device under test; and

deriving the frequency dependency of the optical property of the device under test from the synchronized time dependencies.

8. (previously presented) The method of claim 7, wherein deriving a dependency of the optical frequency λ and deriving a dependency of the optical property of the device under test are performed with the use of at least one interferometer.

9. (previously presented) The method of claim 7, wherein synchronizing the time dependency of the optical frequency λ of the optical beam with a time dependency of the optical property of the device under test is performed by using a time-delay to synchronize the time dependency of the optical frequency λ of the optical beam with the time dependency of the optical property of the device under test.

10. (previously presented) The method of claim 7, wherein the synchronization is dynamic or static.

11. (previously presented) A method of determination of an optical property of an optical device under test comprising:

tuning a frequency of an incoming light beam over a given frequency range;
splitting the incoming light beam into a first initial light beam and a second initial light beam;
splitting said first initial light beam into a first light beam and a second light beam;
coupling the first light beam into the optical device under test;
letting the second light beam travel a different path from the first light beam;
superimposing the first and the second light beam to produce interference between the first light beam and the second light beam in a resulting first superimposed light beam;
detecting the power of the first superimposed light beam for deriving a first signal over time containing information about the optical property of the device under test;
splitting the second initial light beam into a third light beam and a fourth light beam;
superimposing the third and the fourth light beam after said third and fourth light beams have traveled a different path, to produce interference between the third and the fourth light beam in a resulting second superimposed light beam;
detecting the power of the resulting second superimposed light beam for deriving a second signal over time containing information about the time dependence of the frequency;
compensating a time-delay between the first and the second signal; and
deriving a frequency dependency of the first signal for deriving the optical property of the optical device under test.

12. (previously presented) The method of claim 3, wherein the higher-order polarization mode dispersion parameters include the rate of change of the differential group delay with frequency.

13. (previously presented) The method of claim 5, wherein the software program or product is stored on a data carrier.

14. (previously presented) The apparatus of claim 6, wherein the optical device under test is a heterodyne optical network analyzer.